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Application Note – Code Compliant BMS for OTSG

CSA B149.3-10, C22.2 No. 0.8-09, Code Compliant Steam Generator, Control and Safety System

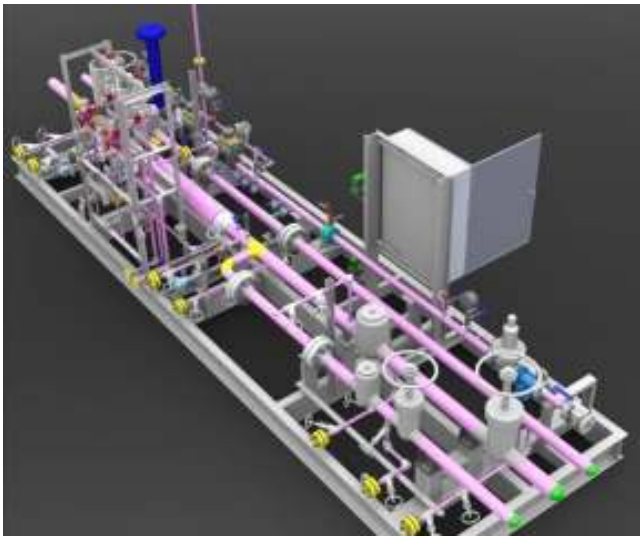
Date: ***Jan 31, 2011***

MICA Controls is proud to introduce to the Canadian SAGD market, a cost effective, code compliant Burner Management System (BMS) and combustion control system for the safe and efficient operation of steam generators.

MICA Controls Ltd. has worked closely with Combustion Solutions Inc. (CSI) for several years, delivering Safety System and Combustion related solutions, including the first CSA B149.3 code compliant process heater PLC-based BMS in 2001.

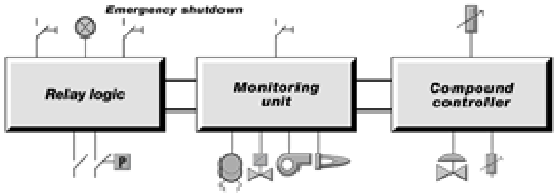
The heart of the Safety Integrated System (SIS) is the HIMA SIL3 rated PLC, consisting of logic solver and I/O system, integrated with SIL rated sensors and Safety approved final elements. Combined with CSI's revolutionary eHEnergizer ignition system, fuel gas and pilot system, and with locked BMS and combustion control logic, this results in a safe, cost effective, reliable solution for every steam generator used in SAGD.

Below is an example of a complete system for use on a Once Through Steam Generator (OTSG) containing pipe trains for steam, feed water and fuel which are pre-wired to the Boiler Control System and BMS PLCs.

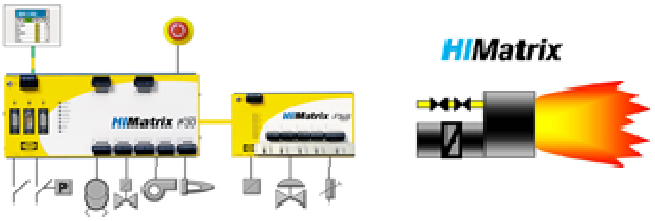


Below is a block diagram illustrating the Cost-effective BMS architecture using the HIMA HIMatrix Safety System.

Previous solution



Cost-effective HIMA solution



This turn-key system consists of BMS, combustion control and boiler control system for a Once Through Steam Generator (OTSG). Our deliverables include the following:

- **Development of process package, including P&ID's and functional description.**
- **Design of steam, water and fuel skid.**
- **Sizing, specification, data sheets and procurement of all instruments.**
- **Piping and support design and stress analysis (using Caesar) for steam, water and fuel piping.**
- **Detailed controls engineering including control narrative, logic diagrams, panel design, wiring diagrams, HIMA HiMatrix system and HMI programming.**
- **Fabrication of skid including boiler external piping and non boiler external piping.**
- **Control panel fabrication and approval for hazardous locations.**
- **Factory Acceptance Testing, Site Acceptance Testing, Commissioning and Start-up.**

MICA Controls Ltd. Manufacturer Representatives: